

REMARKS

I. Introduction

As an initial matter, Applicant notes that a Preliminary Amendment was filed on July 9, 2001, wherein two new claims were added. These two new claims were inadvertently numbered as claims 86 and 87, respectively. There were, however, already claims bearing these numbers pending in the application. Consequently, these two claims are listed as claims 88 and 89 herein and will be referred to as such henceforth.

Thus, claims 1-46, 48-49 and 51-89 are the claims pending in the application, with claims 47 and 50 having been previously canceled.¹ Claims 1-44, 47-49 (sic: 48-49) and 51-89 are rejected. Specifically, claims 18, 22 and 62-66 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement; claims 18-19, 20-24, 32, 44-45, 47-49 (sic: 48-49), 52-53, 62-67 and 86 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite; and claims 1-21, 24-44 and 54-88 (sic: 54-89) are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,731,876 to Okamoto et al. (hereinafter "Okamoto") in view of U.S. Patent No. 6,097,720 to Araujo et al. (hereinafter "Araujo").

¹ The Office Action incorrectly lists claim 46 as a canceled claim and claim 47 as a pending claim.

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II. Claim Rejections -- 35 U.S.C. § 112, First Paragraph

As noted above, claims 18, 22 and 62-66 stand rejected under § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner alleges that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

A. Claim 18

Referring to claim 18, the Examiner alleges that the specification inadequately describes "line side packet loopback means to loopback the first-type of frames extracted from the second frames into the first FIFO for test purpose" (Office Action: page 18).

It is respectfully submitted that the recited "loopback" is a known term in the art, and Applicant's specification adequately describes the features of claim 18, for example, at page 35, lines 10-22.

B. Claims 19, 67 and 86

Referring to claims 19, 67 and 86, the Examiner asks "What is meant by 'simplified SONET, pseudo-synchronous digital hierarchy'?" The Examiner's position is that these are not terms of art that have a known meaning (Office Action: page 18).

To the contrary, simplified SONET and pseudo-SDH are used in the art to indicate changing, simplifying or saving some overhead compared with the standard SONET, SDH.

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XXX-like is a commonly used expression in the art, and is used to indicate compliance with some standard, but with modifications (*see, e.g.*, Araujo: col. 5, lines 8-14, "HDLC-like").

C. Claim 22

Referring to claim 22, the Examiner alleges that the specification inadequately contains written description on the features of "DS codepoint is extracted from the network layer data to control the queue algorithm" (Office Action: page 18).

It is respectfully submitted that Applicant's specification adequately describes the features of claim 22, for example, at page 14, lines 15-19.

D. Claim 62

Referring to claim 62, the Examiner alleges that the specification inadequately contains written description on the features of "in said first framing step inter-frame fill is performed and FIFO error recovery is transmitted" (Office Action: page 18).

It is respectfully submitted that Applicant's specification adequately describes the features of claim 62, for example, at page 15, lines 3-6.

III. Claim Rejections -- 35 U.S.C. § 112, Second Paragraph

As noted above, claims 18-19, 20-24, 32, 44-45, 47-49 (sic: 48-49), 52-53, 62-67 and 86 stand rejected under § 112, second paragraph, as allegedly being indefinite for failing to

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particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

A. Claim 18

Referring to claim 18, the Examiner asks "What is meant by 'line side packet loopback means to loopback the first type of frames extracted from the second frames into the first FIFO for test purpose'?" (Office Action: page 18).

It is respectfully submitted that the features of claim 18 are sufficiently definite from claim language itself, as well as the description set forth in the specification (*see, e.g.*, Applicant's specification: page 35, lines 10-22).

B. Claims 19, 67 and 86

Referring to claims 19, 67 and 86, the Examiner asks "What is meant by 'SDH/SONET'? Does the slash mean 'and' or 'or'?" (Office Action: page 19).

It is respectfully submitted that use of the combined terms SDH/SONET is known in the art to symbolize that SDH and SONET are equivalents, *i.e.*, SONET is the North American equivalent of SDH (*see* Applicant's specification: page 1, lines 28-29). Thus, the claims referenced by the Examiner are intended to cover at least one of the SDH and SONET networks.

C. Claims 20 and 44

Referring to claims 20 and 44, the Examiner asks "What is meant by 'SDH/SONET-like [frames]'?" (Office Action: page 19).

As noted above in Section II.(B.), XXX-like is a commonly used expression in the art, and is used to indicate compliance with some standard, but with modifications (*see, e.g.,* Araujo: col. 5, lines 8-14, "HDLC-like").

D. Claims 23, 24 and 32

Referring to claims 23, 24 and 32, the Examiner asks "What is meant by 'PPP/HDLC [solution]'? Does the slash mean 'and' or 'or'?" (Office Action: page 19).

It is respectfully submitted that use of the phrase "PPP/HDLC solution" is known in the art to mean PPP in HDLC-like Framing (*see, e.g.,* RFC 1662).

E. Claim 22

Referring to claim 22, the Examiner asks "What is meant by 'DS codepoint is extracted from the network layer data to control the queue algorithm'?" (Office Action: page 19).

It is respectfully submitted that the features of claim 22 are sufficiently definite from claim language itself, as well as the description set forth in the specification (*see, e.g.,* Applicant's specification: page 14, lines 15-19).

F. Claim 47

Referring to claim 47, the Examiner alleges that claim 47 depends upon multiple dependent claims and is therefore indefinite.

Claim 47, however, was canceled in the Preliminary Amendment filed on March 13, 2001.

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G. Claims 51 and 52

Referring to claims 51 and 52, the Examiner alleges that claims 51 and 52 depend upon each other and are therefore indefinite.

Applicant amends claim 51 to correct its dependency.

H. Claim 62

Referring to claim 62, the Examiner asks "What is meant by 'wherein in said first framing step inter-frame fill is performed and FIFO error recovery is transmitted'?" (Office Action: page 19).

It is respectfully submitted that the features of claim 62 are sufficiently definite from claim language itself, as well as the description set forth in the specification (*see, e.g.*, Applicant's specification: page 15, lines 3-6).

IV. Claim Rejections -- 35 U.S.C. § 103(a)

As noted above, claims 1-21, 24-44 and 54-89 stand rejected under § 103(a) as allegedly being unpatentable over Okamoto in view of Araujo.

By way of overview, Okamoto discloses a general SDH architecture, which is merely a basic platform for accommodating data packets of different protocols (*e.g.*, to take IP over SDH/SONET) on the SDH platform.

Araujo discloses a PPP scheme used in ATM technology. The present application has explained the PPP solution on pages 2 and 3 of Applicant's specification, which overlaps with the references cited by the Examiner:

Currently, the method for adapting IP to SDH/SONET is PPP (including LCP and NCP) over HDLC of RFC 2615 protocol, which includes RFC 1661, RFC 1662, RFC 1570, RFC 1547, RFC 1340. PPP can encapsulate more than 30 network protocols, including Ipv4. However, PPP was originally proposed for inter-protocol adaptation for Modem dial-up(firewall), the algorithm for PPP is complicated.

Additionally, it is well known that PPP is connection-based or oriented (*see also* Araujo: Fig. 9), which means that before the PPP data is transmitted between the sender and the receiver, there must be a hand-shaking process (similar to the negotiation used with dial-up networking). The handshake must be performed separately by a CPU on both sides. After the connection is setup, the data can be transmitted in the PPP approach. Furthermore, since the PPP protocol is complicated, as is the PPP processing, and the PPP is connection based or oriented, the PPP processing must be performed in a CPU (*see, e.g.,* Araujo: Fig. 9, elements 107 and 113).

For example, as shown in Applicant's Fig. 1, which illustrates a conventional PPP over SDH solution, the PPP processing must be performed at the system CPU 4. In other words, although the PPP format includes a protocol field for indicating the type of the datagram (as 100 in Araujo), the related PPP processing must be performed in a CPU, such as the system CPU 4 shown in Applicant's Fig. 1 or the CPU 107 or 113 shown in Fig. 9 of Araujo.

PPP originated from the modem dialup solution and is connection based or oriented. The conventional PPP over SDH solution is suitable for high speed data transmission for a

connection-oriented case made by LCP of a router, just like routing protocols and network management function), and not for a connectionless case.

Conversely, embodiments of the present invention accommodate multiple data protocols on the SDH platform, are connectionless, are suitable for high speed data transmission and can be configured to be compatible with PPP over SDH.

Claim 1 recites, *inter alia*, “SAPI identifier generating means for recognizing the type of the data packets and generating a SAPI identifier according to the recognized type.”

The Examiner acknowledges that Okamoto fails to teach or suggest any use of a SAPI (*i.e.*, a Service Access Point Identifier), let alone generating a SAPI identifier based on a recognized type of the received data packets (Office Action: page 3). Instead, the Examiner merely notes that Okamoto describes that an IP packet is inserted into a PPP packet (*citing* Okamoto: col. 9, line 31 to col. 10, line 56).

The Examiner alleges, however, that Araujo makes up for this acknowledged deficiency of Okamoto by disclosing a SAPI identifier (*citing* Araujo: col. 3, lines 28-30; col. 4, line 63 to col. 5, line 26; and Fig. 2, element 100). To the contrary, Araujo, like Okamoto, fails to teach or suggest any use of a SAPI, let alone generating a SAPI identifier based on a recognized type of the received data packets. Instead, Araujo merely describes that in a PPP session, a protocol field 100 has a value that identifies the datagram encapsulated in an information field 101 of a packet (Araujo: col. 7, lines 32-42; and Fig. 2).

Furthermore, claim 1 recites a “first framing means for encapsulating a SAPI field including said SAPI identifier and an information field including said data packets into a frame, to form a first type of frames.” For example, the first framing means performs LAPS framing (a connectionless protocol done by a high-speed circuit of a router), wherein the LAPS frame includes a SAPI identifier for indicating the type of the encapsulated data.

The first framing means is not an embedded CPU system, either on a line card or as a system CPU. A CPU running software is much slower than a hardware/circuit, like the framer/deframer recited in claim 1. For example, as shown in Applicant’s Fig. 6, although there is an embedded CPU 10 and a system CPU 4, the framer/deframer is a distinct device, and is not an embedded CPU.

So, whereas the conventional PPP over SDH solution is one way to build a connection-based high speed data transmission, the features of claim 1 provide a data transmission apparatus suitable for connectionless high speed data transmission.

Additionally, as noted above, the PPP over SDH solution needs a handshake processing step to setup a connection before the data transmission. Conversely, claim 1 supports protocols other than PPP and, thus, would not need any handshake processing for these other protocols.

Further still, PPP frames must include padding in addition to the PPP information, as defined in the protocol. This is also the case in Araujo (*see, e.g.*, Araujo: Fig. 6). Conversely, in claim 1, the first framer encapsulates the SAPI and an information field including the data packets directly, *i.e.*, without padding.

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In view of the above, claim 1 is not rendered obvious by the proposed combination of Okamoto in view of Araujo. Claims 25, 54, 71, 88 and 89, which are the other independent claims, recite features similar to those found in claim 1 and, thus, are patentable over the proposed combination of Okamoto in view of Araujo based on a rationale analogous to that set forth above for claim 1. Accordingly, claims 2-21, 24, 26-44, 55-70 and 72-87 are patentable over the proposed combination of Okamoto in view of Araujo, at least by virtue of their dependency.

Additionally, there is no suggestion or motivation to combine the PPP approach of Araujo with Okamoto. Furthermore, combining Okamoto and Araujo in the manner proposed by the Examiner would yield, at best, the PPP over SDH solution, which is described in the background art portion of Applicant's specification and is inferior to Applicant's claimed invention.

V. Formal Matters

A. Priority

The Examiner acknowledges Applicant's claim for foreign priority including receipt of the priority document (in the parent case).

B. Information Disclosure Statement

The Examiner provides a signed copy of the Form PTO-1449 submitted with the IDS filed on March 13, 2001. On the signed form, the Examiner initials by the foreign patent

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documents, indicating his consideration of these references, but crosses through the two other documents as allegedly not in conformance such that the Examiner did not consider these two references.

C. Claims

Claims 18, 25-45 and 71-87 are objected to because of the following informalities.

The Examiner objects to claims 25 and 71 because they recite "encapsulating a first type," when the examiner believes that "deencapsulating" the first type" is occurring (Office Action: page 19). To the contrary, the phrase "encapsulating a first type" is used only in the preamble of claims 25 and 71 and describes how the data packets being transmitted are formed. In general, claims 25 and 71 then recite what happens to the data packets upon receipt.

The Examiner objects to claim 18, which depends from claim 3. Claim 18 recites that the data transmission apparatus of claim 1 (through claim 3) further comprises a line side packet loopback means for storing the first type of frames extracted from the second frames into the first FIFO for test purposes. Thus, claim 18 is entirely consistent with the features of claim 3 and need not be canceled as the Examiner suggests.

The Examiner objects to claim 45, which depends from claim 44. Claim 45 recites that the data transmission apparatus of claim 25 (through claim 44) further comprises a connection management unit for determining whether a connection error occurs. Thus, claim 45 is entirely consistent with the features of claim 44 and need not be canceled as the Examiner suggests.

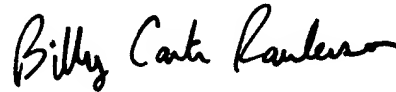
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VI. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: May 20, 2005